

Amendment to the Claims

1 (Currently Amended). A method for communication between two or more customer virtual local area network (LAN) segments through a provider network, with each customer virtual LAN segment including a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising the steps of:

in at least one of the provider edge bridges coupled to a customer virtual LAN segment:

receiving topology change notifications (TCNs) from the customer network in response to a topology change in one or more of the customer virtual LAN segments;

in response to receiving a TCN from the customer network, monitoring end host media access control (MAC) addresses in data units received from the customer network for a predetermined time period;

determining whether a topology change has occurred in one or more of the customer virtual LAN segments that affects paths of data units through the provider network by:

monitoring whether a predetermined number of new end host MAC addresses of data units received from the customer network in the predetermined time period are not found in a MAC address memory file, wherein the MAC address memory file associates end host MAC addresses with ports of the provider edge bridge; and

monitoring whether a contradiction occurs between an end host MAC address of a data unit received from the customer network and the MAC address memory file;

flushing the MAC address memory file in response to determining that a topology change has occurred in one or more of the customer virtual LAN segments affecting paths of data units through the provider network; and

in response to determining a topology change in one or more of the customer virtual LAN segments do not affect paths of data units through the provider network, storing the new end host MAC addresses of data units received from the customer network in the predetermined time period ~~a new address~~ in the MAC address memory file without flushing the MAC address memory file.

2 – 4. (Canceled).

5 (Previously Presented). The method of claim 1 and further comprising the step of storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

6 (Original). The method of claim 1 wherein said end host address are media access control (MAC) addresses.

7 (Original). The method of claim 1 wherein the data units are frames.

8 (Canceled). Please cancel claim 8.

9 -10. (Canceled).

11 (Currently Amended). A provider edge bridge of a provider network for providing communication with one or more customer edge bridges of customer local area network (LAN) segments, comprising:

processing circuitry for:

receiving topology change notifications (TCNs) from the one or more customer bridges in response to a topology change in one or more of the customer LAN segments;

in response to receiving a TCN from the customer network, monitoring end host media access control (MAC) addresses in data units received from the one or more customer bridges for a predetermined time period to determine whether a topology change has occurred in one or more of the customer LAN segments that affects paths of data units through the provider network;

determining that a topology change has not occurred in one or more of the customer virtual LAN segments that affects paths of data units through the provider network by:

determining less than a predetermined number of end host MAC addresses of data units received from the customer network in the predetermined time period are not found

in a MAC address memory file, wherein the MAC address memory file associates end host MAC addresses with ports of the provider edge bridge; and

determining no contradictions occur in the predetermined time period between an end host MAC address of a data unit received from the customer network and the MAC address memory file;

flushing an address memory file associating end host addresses with ports of the provider edge bridge when it is determined that topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network; and

in response to determining that a topology change in the customer LAN segments do not affect paths of data units through the provider network, storing any of the end host MAC addresses of data units received from the customer network in the predetermined time period not found in the MAC address memory file ~~a new address~~ in the MAC address memory file without flushing the MAC address memory file.

12 – 14. (Canceled).

15 (Previously Presented). The provider edge bridge of claim 11 and further including a memory for storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

16 (Original). The provider edge bridge of claim 11 wherein said end host address are media access control (MAC) addresses.

17 (Original). The provider edge bridge of claim 11 wherein the data units are frames.

18 (Canceled ). Please cancel claim 18.

19 – 20. (Canceled).

21. (Canceled) Please cancel claim 21.

22. (Canceled).